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In conclusion I wish to acknowledge my indebtedness to Dr. F. H. Knowlton of the United States Geological Survey for criticisms and references in nomenclature and synonymy.

A Preliminary List of the North American Species of Malpighiaceae and Zygophyllaceae.

By ANNA MURRAY VAIL.

MALPIGHIACEAE.

1. JANUSIA A. Juss. Monog. Malp. 349. *pl.* 21. 1843.
 JANUSIA GRACILIS A. Gray, Pl. Wright. 1: 37. 1852.
 DISTR. Arizona, New Mexico, Texas and Mexico.
2. ASPICARPA Rich. in Mem. Mus. Par. 2: 398. *pl.* 1. 1815.
 1. ASPICARPA HYSSOPIFOLIA A. Gray, Bost. Journ. Nat. Hist. 6: 167. 1850.
 DISTR. Texas, New Mexico and North Mexico.
2. ASPICARPA LONGIPES A. Gray, Pl. Wright. 1: 37. 1852.
 DISTR. Texas, New Mexico, southern Arizona and North Mexico.
 Very close to *A. humilis* (Benth.), from which it differs mainly in its trailing, and decumbent habit and somewhat larger leaves.*
3. THRYALLIS L. Sp. Pl. Ed. 2, 554. 1763. Not *Thryallis*
 Mart. Nov. Gen. 3: 77. *pl.* 230, 231. 1829.
 THRYALLIS ANGUSTIFOLIA (Benth.) Kuntze, Rev. Gen. Pl. 89. 1891.
Galphimia angustifolia Benth. Bot. Sulph. 9. 1844.
Galphimia linifolia A. Gray, Bost. Journ. Nat. Hist. 6: 166. 1850.
 DISTR. Western Texas to New Mexico, Lower California and Mexico.
 Very variable. The broader leaved form is
 THRYALLIS ANGUSTIFOLIA OBLONGIFOLIA. (A. Gray.)
Galphimia linifolia β *oblongifolia* A. Gray, Pl. Wright. 1: 36 1852. It is found with the type and may possibly be a species.

* *Aspicarpa Hartwegiana* A. Juss. Arch. Mus. Par. 3: 598. 1843, is a synonym of *Gaudichaudia humilis* Benth. Pl. Hartw. 6. 1839, *vide* Kew Index.

4. MALPIGIA L. Sp. Pl. 425. 1753.

MALPIGIA GLABRA L. Sp. Pl. 425. 1753.

Malpigia nitida Mill. Gardn. Dict. Ed. 8: No. 5. 1768.

DISTR. Texas, Mexico, West Indies and South America.

5. BYRSONIMA Rich. & Juss. Ann. Mus. Par. 18: 481. 1811.

BYRSONIMA LUCIDA (Sw.) H. B. K. Nov. Gen. 5: 147. 1821.

Malphigia lucida Sw. Fl. Ind. Occ. 852. 1800.

DISTR. South Florida and West Indies.

ZYGOPHYLLACEAE.

1. FAGONIA L. Sp. Pl. 386. 1753.

* FAGONIA CALIFORNICA Benth. Bot. Sulph. 10. 1844.

DISTR. California, North and South Mexico.

2. GUAJACUM L. Sp. Pl. 381. 1753.

GUAJACUM SANCTUM L. Sp. Pl. 382. 1753.

Guajacum verticale Ortega, Dec. 8: 93. 1800.*Guajacum Sanctum* var. *parvifolium* Nutt. Sylva, 3: 17. 1849.

DISTR. South Florida, Bahamas, San Domingo, Porto Rico, etc.

3. PORLIERIA Ruiz & Pav. Prod. 55. *pl.* 9. 1794.

PORLIERIA ANGUSTIFOLIA (Engelm.) A. Gray, Pl. Wright. 1: 28. 1852.

Guajacum angustifolium Engelm. Wislitz. Rep. 29. 1843.

DISTR. Texas and North Mexico.

4. COVILLEE.†

Larrea Cav. in Ann. Hist. Nat. 2: 119. *pl.* 18, 19. 1800. Not
Larrea Ortega. Hort. Matr. Dec. 15. *pl.* 2. 1797.

COVILLEA DIVARICATA (Cav.).

Larrea divaricata Cav. Ann. Hist. Nat. 2: 122. 1800.

* FAGONIA CALIFORNICA GLUTINOSA n. var.

Somewhat stouter, the leaflets larger, the terminal one sub-rhomboid, the whole plant beset with sub-sessile, aromatic, gold-colored glands.

Sonora, Mexico, Pringle (1884); Los Angeles Bay, Lower California, Palmer No. 546 (1887); Sta. Rosalia Island, Palmer, Lower California (1890).

The above name appears on a sheet of Mr. Pringle's collection in Herb. Columbia College, and I have not been able to find any printed reference to it.

† Named in honor of Frederick Vernon Coville.

Zygophyllum tridentatum DC. Prodr. 1: 706. 1824.

Larrea Mexicana Moric. Pl. Nouv. Am. 71. pl. 48. 1833-1846.

Larrea glutinosa Engelm. Wislitz. Rep. 9. 1848.

DISTR. Southern Utah, Nevada, Arizona, Texas, New Mexico, Mexico and in the deserts of Chili.

Careful examination does not reveal any characters that warrant keeping the Mexican species distinct from the South American. The principal differences were found in the staminal scale. The latter is a very variable organ, and three or four variations were found, not only on the same plant, but in the same flower.*

5. TRIBULUS L. Sp. Pl. 386. 1753.

1. TRIBULUS CISTOIDES L. Sp. Pl. 387. 1753.

DISTR. Florida, Texas, Mexico, Lower California, West Indies and tropical America.

2. TRIBULUS TERRESTRIS L. Sp. Pl. 387. 1753.

DISTR. Ballast Grounds, Hunter's Point, Long Island, N. Y.; South Carolina, Mexico and Brazil. A native of Southern Europe, East Indies, etc.

6. KALLSTROEMIA Scop. Introd. 212. 1777.

1. KALLSTROEMIA CALIFORNICA (S. Wats.)

Tribulus Californicus S. Wats. Proc. Amer. Acad. 11: 125. 1876.

DISTR. Arizona, North Mexico and Lower California.

2. KALLSTROEMIA GRANDIFLORA Torrey; A. Gray, Pl. Wright. 1: 28. 1852.

Kallstroemia grandiflora var. *detonsa* A. Gray, Pl. Wright. 1: 28. 1852.

Tribulus grandiflorus Benth. & Hook. Gen. Pl. 1: 264. 1862-67.

DISTR. Texas, Arizona, New Mexico, California, North and South Mexico, Guatemala.

3. KALLSTROEMIA MAXIMA (L.) T. & G. Fl. N. A. 1: 213. 1838.

Tribulus maximus L. Sp. Pl. 386. 1753.

Tribulus trijugatus Nutt. Gen. 1: 277. 1818.

* The other species are *Covillea nitida* (Cav.) and *Covillea cuneifolia* (Cav.), both from South America, and described under *Larrea* in Cav. Icon. 6: 40-41. pl. 559, 560. 1801.

Tribulus decolor Macfadyen, Fl. Jamaic. 186. 1837.

DISTR. Kansas, Arizona, Texas, New Mexico, Florida, Mexico, and common in tropical and sub-tropical America to Brazil.

7. PEGANUM L. Sp. Pl. 444. 1753.

PEGANUM MEXICANUM A. Gray, Pl. Wright. 1: 30. 1852. 2: 106. 1853.

DISTR. New Mexico and Mexico.

The Genus *Zenobia* Don.

In 1834 David Don published "A New Arrangement of the Ericaceae,"* in which he separated a number of species from the large Linnaean genus *Andromeda*, creating at the same time several new genera in which the detached species were included. Of these additions, *Cassandra* (now *Chamaedaphne*), *Cassiope* and *Leucothoe* have long been recognized as distinct; but *Zenobia*, although it was taken up by Bentham and Hooker,† has been considered by Gray and later botanists only a subgenus of *Andromeda*. I here propose to restore it to its original rank, thus preserving the arrangement of Don and of Hooker.

ZENOBIA Don.

Calyx free, 5-lobed; corolla campanulate with 5 rounded lobes; stamens 10, on short basally dilated filaments; anther-cells elongated, 2-awned; stigma simple; capsule depressed-globose, 5-angled, loculicidally 5-valved, many-seeded; seeds oval, with a spongy testa and fleshy albumen. Smooth or glaucous shrubs with somewhat coriaceous strongly reticulated leaves, and white flowers disposed in axillary fascicles.

ZENOBIA CASSINEFOLIA (Vent.).

Andromeda cassinefolia Vent. Hort. Cels. 1: 60. 1800.

Andromeda nitida Sims, Bot. Mag. pl. 970. 1803. Not Bartr.

Andromeda speciosa Michx. Fl. Bor. Am. 1: 256. 1803.

Fruticose, glabrous throughout; leaves coriaceous, oblong-ovate, acuminate, irregularly serrate, the earlier obtuse, the later acute, length 5 cm., width 2.5 to 3 cm.: flowers in naked umbelli-

* Edinb. N. Phil. Journ. 17: 158. 1834.

† Genera Plantarum, 2: 587. 1873.